

blending purified water with said first composition in a second in-line blending station to produce a second composition;

aging said second composition in a reservoir to produce an aged composition; and

passing said aged composition through a shear pump to a storage tank.

24. (New) The method of Claim 23, wherein the emulsion is about 5 wt.% to about 50 wt. % of said purified water and about 50 wt.% to about 95 wt. % of said hydrocarbon petroleum distillate fuel.

25. (New) The method of Claim 23, wherein said primary surfactant is at about 3,000 parts per million to about 10,000 parts per million.

CIA 26. (New) The method of Claim 23, wherein said primary surfactant is selected from the group consisting of nonionic surfactants, anionic surfactants, and amphoteric surfactants.

27. (New) The method of Claim 23, wherein said primary surfactant is selected from the group consisting of unsubstituted, mono-substituted amides of saturated C_{12} - C_{22} fatty acids, unsubstituted, di-substituted amides of saturated C_{12} - C_{22} fatty acids, unsubstituted, mono-substituted amides of unsaturated C_{12} - C_{22} fatty acids, and unsubstituted, di-substituted amides of unsaturated C_{12} - C_{22} fatty acids.

28. (New) The method of Claim 23, wherein said mono and di substituted amides are substituted by substituents selected, independently of each other, from the group consisting of straight and branched, unsubstituted alkyls having 1 to 4 carbon atoms, straight and branched, substituted alkyls having 1 to 4 carbon atoms, straight and branched, unsubstituted alkanols having 1 to 4 carbon

atoms, straight and branched, substituted alkanols having 1 to 4 carbon atoms, and aryls.

29. (New) The method of Claim 23, wherein said primary surfactant is a 1:1 fatty acid diethanolamide of oleic acid.

30. (New) The method of Claim 23, wherein said block copolymer is at about 1,000 ppm to about 5,000 ppm.

31. (New) The method of Claim 23, wherein said block copolymer is an ethylene oxide/propylene oxide block copolymer.

C12 32. (New) The method of Claim 23, wherein said block copolymer is selected from the group consisting of an ethylene oxide/propylene oxide block copolymer having about 10 wt.% to about 40 wt.% ethylene oxide and an ethylene oxide/propylene oxide block copolymer having about 900 molecular weight to about 2,500 molecular weight propylene oxide.

33. (New) The method of Claim 23, wherein said block copolymer is selected from the group consisting of an ethylene oxide/propylene oxide block copolymer having about 20 wt.% ethylene oxide and an ethylene oxide/propylene oxide block copolymer having about 1,700 molecular weight propylene oxide.

34. (New) The method of Claim 23, wherein said polymeric dispersant is at about 100 ppm to about 1,000 ppm.

35. (New) The method of Claim 23, wherein said polymeric dispersant is a non-ionic polymeric dispersant.

36. (New) The method of Claim 23, wherein said emulsion comprises about 10 wt.% to about 50 wt.% of said purified water, about 50 wt.% to about 90 wt.% hydrocarbon petroleum distillate fuel, at least about 4,000 ppm amide primary emulsifier, about 200 ppm to about 3,000 ppm ethylene oxide/propylene oxide block polymer, and about 600 ppm to about 800 ppm polymeric dispersant.

37. (New) The method of Claim 36, wherein said amide primary emulsifier is a diethanolamide of oleic acid.

38. (New) The method of Claim 23, wherein the emulsion has an average droplet size of less than about 5 microns.

39. (New) The method of Claim 23, wherein the emulsion has an average droplet size of about less than 1 micron.

40. (New) The method of Claim 23, wherein the emulsion has an average droplet size of about 0.1 microns to about 1 micron.

41. (New) The method of Claim 23, further comprising at least one component selected from the group consisting of lubricants, corrosion inhibitors, antifreezes, ignition delay modifiers, cetane improvers, stabilizers, and rheology modifiers.

42. (New) The method of Claim 41, wherein said flow of additives is comprised of said surfactant package and at least one of said components.

43. (New) The method of Claim 41, wherein said flow of additives is comprised of a flow of said antifreeze and at least one of said components blended in a third in-line blending station.

44. (New) The method of Claim 23, wherein said purified water contains about 0.1 parts per million to about 50 parts per million of calcium ions, contains about 0.1 parts per million to about 50 parts per million of magnesium ions, and contains about 0.1 parts per million to about 20 parts per million of silicon.

45. (New) The method of Claim 23, wherein said purified water contains about 0.1 parts per million to about 2 parts per million calcium ions, contains about 0.1 parts per million to about 2 parts per million magnesium ions, and contains about 0.1 parts per million to about 1 parts per million silicon.

CM 46. (New) The method of Claim 23, further comprising adjusting the pH of said purified water to a pH of about 4 to about 7.

47. (New) The method of Claim 23, further comprising adjusting the pH of said purified water to a pH of about 5 to about 6.

48. (New) The method of Claim 23, further comprising adding a coupling agent formed into a water soluble salt to said flow of additives.

49. (New) The method of Claim 23, wherein the emulsion is ashless.

50. (New) The method of Claim 23, wherein said additives are selected to result in the emulsion being ashless

51. (New) A high stability, low emission, invert fuel emulsion composition resulting from the method comprising:

blending a flow of additives including a surfactant package and a flow of hydrocarbon petroleum distillate fuel to form a first composition in a first in-line blending station; wherein said hydrocarbon petroleum distillate fuel is a

continuous phase of the emulsion, and wherein said surfactant package comprises a primary surfactant, a block copolymer, and a polymeric dispersant;

blending a flow of purified water to said first composition in a second in-line blending station to form a second composition;

aging said second composition in a reservoir to form an aged composition; and

passing said aged composition through a shear pump to a storage tank.

52. (New) The emulsion composition of Claim 51, wherein the emulsion is about 5 wt.% to about 50 wt. % purified water and about 50 wt.% to about 95 wt. % hydrocarbon petroleum distillate fuel.

53. (New) The emulsion composition of Claim 51, wherein said primary surfactant is at about 3,000 parts per million to about 10,000 parts per million.

54. (New) The emulsion composition of Claim 51, wherein said primary surfactant is selected from the group consisting of nonionic surfactants, anionic surfactants, and amphoteric surfactants.

55. (New) The emulsion composition of Claim 51, wherein said primary surfactant is selected from the group consisting of unsubstituted, mono-substituted amides of saturated C_{12} - C_{22} fatty acids, unsubstituted, di-substituted amides of saturated C_{12} - C_{22} fatty acids, unsubstituted, mono-substituted amides of unsaturated C_{12} - C_{22} fatty acids, and unsubstituted, di-substituted amides of unsaturated C_{12} - C_{22} fatty acids.

56. (New) The emulsion composition of Claim 51, wherein said mono and di substituted amides are substituted by substituents selected,

independently of each other, from the group consisting of straight and branched, unsubstituted alkyls having 1 to 4 carbon atoms, straight and branched, substituted alkyls having 1 to 4 carbon atoms, straight and branched, unsubstituted alkanols having 1 to 4 carbon atoms, straight and branched, substituted alkanols having 1 to 4 carbon atoms, and aryls.

57. (New) The emulsion composition of Claim 51, wherein said primary surfactant is a 1:1 fatty acid diethanolamide of oleic acid.

58. (New) The emulsion composition of Claim 51, wherein said block copolymer is about 1,000 ppm to about 5,000 ppm.

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59. (New) The emulsion composition of Claim 51, wherein said block copolymer is an ethylene oxide/propylene oxide block copolymer.

60. (New) The emulsion composition of Claim 51, wherein said block copolymer is selected from the group consisting of an ethylene oxide/propylene oxide block copolymer having about 10 wt.% to about 40 wt.% ethylene oxide and an ethylene oxide/propylene oxide block copolymer having about 900 molecular weight to about 2,500 molecular weight propylene oxide.

61. (New) The emulsion composition of Claim 51, wherein said block copolymer is selected from the group consisting of an ethylene oxide/propylene oxide block copolymer having about 20 wt.% ethylene oxide and an ethylene oxide/propylene oxide block copolymer having about 1,700 molecular weight propylene oxide.

62. (New) The emulsion composition of Claim 51, wherein said polymeric dispersant is about 100 ppm to about 1,000 ppm.

63. (New) The emulsion composition of Claim 51, wherein said polymeric dispersant is a non-ionic polymeric dispersant.

64. (New) The emulsion composition of Claim 51, wherein said emulsion comprises about 10 wt.% to about 50 wt.% of said purified water, about 50 wt.% to about 90 wt.% hydrocarbon petroleum distillate fuel, at least about 4,000 ppm amide primary emulsifier, about 200 ppm to about 3,000 ppm ethylene oxide/propylene oxide block polymer, and about 600 ppm to about 800 ppm polymeric dispersant.

65. (New) The emulsion composition of Claim 64, wherein said amide primary emulsifier is a diethanolamide of oleic acid.

66. (New) The emulsion composition of Claim 51, wherein the emulsion has an average droplet size of less than about 5 microns.

67. (New) The emulsion composition of Claim 51, wherein the emulsion has an average droplet size of about less than 1 micron.

68. (New) The emulsion composition of Claim 51, wherein the emulsion has an average droplet size of about 0.1 microns to about 1 micron.

69. (New) The emulsion composition of Claim 51, further comprising at least one component selected from the group consisting of lubricants, corrosion inhibitors, antifreezes, ignition delay modifiers, cetane improvers, stabilizers, and rheology modifiers.

70. (New) The emulsion composition of Claim 69, wherein said flow of additives is comprised of said surfactant package and at least one of said components.

71. (New) The emulsion composition of Claim 69, wherein said flow of additives is comprised of a flow said antifreeze and at least one of said components blended in a third in-line blending station.

72. (New) The emulsion composition of Claim 51, wherein said purified water contains about 0.1 parts per million to about 50 parts per million of calcium ions, contains about 0.1 parts per million to about 50 parts per million of magnesium ions, and contains about 0.1 parts per million to about 20 parts per million of silicon.

CA 73. (New) The emulsion composition of Claim 51, wherein said purified water contains about 0.1 parts per million to about 2 parts per million calcium ions, contains about 0.1 parts per million to about 2 parts per million magnesium ions, and contains about 0.1 parts per million to about 1 parts per million silicon.

74. (New) The emulsion composition of Claim 51, further comprising adjusting the pH of said purified water to a pH of about 4 to about 7.

75. (New) The emulsion composition of Claim 51, further comprising adjusting the pH of said purified water to a pH of about 5 to about 6.

76. (New) The emulsion composition of Claim 51, further comprising adding a coupling agent formed into a water soluble salt to said flow of additives.

77. (New) The emulsion composition of Claim 51, wherein the emulsion is ashless.

78. (New) The emulsion composition of Claim 51, wherein said additives are selected to result in the emulsion being ashless